

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>2002P13580WO</b>	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/000754</b>	International filing date (day/month/year) <b>28.01.2004</b>	Priority date (day/month/year) <b>05.02.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>G06T 11/00</b>		
Applicant <b>SIEMENS AKTIENGESELLSCHAFT</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000754

Box No. I

Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-15 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-11 received by this Authority on 27 July 2004 with
- nos.\* \_\_\_\_\_ received by this Authority on letter of 22 July 2004
- ☒ the drawings:
- sheets 1/4-4/4 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000754

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	9	YES
	Claims	1-8, 10, 11	NO
Inventive step (IS)	Claims		YES
	Claims	1-11	NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

1. This report makes reference to the following documents:

D1: Henrik Turbell: "Cone-Beam Reconstruction Using Filtered Backprojection", Linköping Studies in Science and Technology - Dissertation No. 672, Linköping, February 2001

D2: US2003007593

D3: EP1096426

D4: US6483892

Clarity:

2. The present application does not meet the requirements of PCT Article 6 because the category of claim 11 is unclear. On the one hand, a computer program product (i.e. an object) is mentioned, and on the other hand its running is claimed. The latter, however, is either a process or a program. The claim could have been clearly directed to a computer program product (without its running), for example, or to a program.

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statementNovelty:

3. The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claims 1-8, 10 and 11 is not novel (PCT Article 33(2)).

3.1 Re. independent claims 1 and 11: document D1 discloses (the references in parentheses are to that document):

"a process for generating images by computer tomography [...] including at least the following steps:

1.1 in order to scan an object to be examined using a cone-shaped ray beam originating from a focal point and a planar, preferably multi-line detector for detecting the ray beam, the focal point is displaced along a spiral trajectory around the object to be examined [...] (page 77, lines 1-11), and

1.2 [...] image voxels [...] are reconstructed from output data [...] (page 89, lines 8 ff.; page 105, lines 25-29),

1.3 each image voxel being separately reconstructed from projection data which encompass a projection angle range of at least 180° (page 99, lines 30-33; page 103, lines 8-18; page 106, lines 4-12; page 107, lines 1-22; figure 4.17), and

1.4 an approximate weighting is carried out for

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each viewed voxel in order to standardise the used projection data on the voxel (page 23, lines 2-5)."

This is the exact (shortened) text of independent process claim 1. The same reasoning applies, *mutatis mutandis*, to the parallel independent claim 11.

- 3.2 Re. independent claim 10: document D1 discloses (the references in parentheses are to that document):

"a CT appliance [...] having a ray beam originating from at least one focal point and a planar detector array [...], the at least one focal point being movable relative to an object to be examined along a focal trajectory around the object to be examined, with an opposite detector array (page 77, lines 1-11), means being also provided at least for collecting detector data (page 77, lines 1-11), filtering (page 24, lines 1 ff.; page 89, lines 8 ff.; page 105, lines 25-29) and 3D backprojection (page 89, lines 8 ff.; page 105, lines 25-29), said means [...] being designed in such a way that they can carry out the process as per one of the claims 1-9 (see passages cited regarding claim 1 in point 3.1 above)."

- 3.3 Re. dependent claims 2-8: D1 also discloses the following additional features (the references in

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parentheses are to that document):

- claim 2: detector data used along a particular straight line (page 111, line 12 - page 112, line 8)
- claim 3: cosine weighting (page 89, lines 8 ff.; page 112, lines 3-8; figure 4.1)
- claim 4: interpolation (page 89, lines 6 ff.; page 102, lines 7-11; page 106, lines 4-12; page 107, lines 1-22)
- claim 5: data redundancies (page 103, lines 8-18)
- claim 6: generalised Parker weights (page 23, lines 5-21)
- claim 7: ramp filter with smoothing window (page 24, lines 1 ff.; page 89, lines 8 ff.; page 105, lines 25-29)
- claim 8: distance weighting (page 105, lines 12-21)

3.4 For the sake of completeness, it should be noted that document **D3** also discloses all the technical features of claims 1, 3, 4 and 8, and that document **D4** also discloses all the technical features of claims 10 and 11.

Inventive step:

4. The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claim 9 does not involve an inventive step (PCT Article 33(3)).

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Apart from a (not novel) process as per claims 1-8, claim 9 defines only the use of this process in computer cardiography, in which "measurement data are selected [...] according to the movement phases of a heart to be examined". With regard to claim 9, a person skilled in the art would face the problem of finding an application for the process as per claims 1-8. As an expert in the field of computer tomography, he would know document D2, which discloses the claimed solution in its abstract.

Further observations:

5. Contrary to PCT Rule 5.1(a)(ii), the description does not cite documents D1 to D4 or indicate the relevant prior art disclosed therein.
6. Contrary to PCT Rule 6.2(b), the features of the claims are not followed in all the claims by reference signs in parentheses, as required to make the claims more easily comprehensible. This applies to both the preamble and the characterising part.